TMF

THE MAC FLYER - For Greater Safety in MAC Air Operations

March 1988

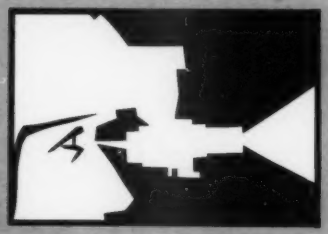
Award Winners . . . page 16

TMF

THE MAC FLYER - For Greater Safety in MAC Air Operations

March 1988 MACSP 127-5 VOL XXXV NO. 3

page 11



page 20

FEATURES

3 **The End is Here!**
Do you do your best work under pressure?

4 **Ralph's Napkins: Worth Reading**
There's a wealth of knowledge available.

8 **Hey, Bubba!**
They weren't making decisions.

11 **A Clear Vision to Succeed**
Knowledge is success.

14 **About Leadership**
Seperating success from disaster.

16 **MAC Safety Award Winners**
The best of our best.

18 ***TMF* Instrument Quiz**
Flight Information Handbook review.

20 **Can You See?**
Night vision devices have limitations.

23 **Decisions, Decisions, Decisions**
Ground-shattering decision-making.

25 **A Bucket of Rotorwash**
Overconfidence + complacency = watery grave.

DEPARTMENTS

6 **Flying-Hour Milestones**
28 **Quick Stoppers**
31 **After Deadlines**

Gen. Duane H. Cassidy — Commander in Chief
Brig. Gen. Floyd E. Hargrove — Inspector General
Col. Thomas M. James — Director of Safety

Maj. Thomas C. Weinzierl — Supervising Editor
Maj. Stephens F. McCauley — Associate Editor
Capt. Daniel T. Dougherty — Associate Editor
Mrs. Frances A. Caldwell — Writer/Editor
Mr. Tommy F. O'Laughlin — Art Director

The MAC Flyer is published by the Director of Safety, Military Airlift Command. The contents are informative and not regulatory or directive. Names of people and places in mishap stories are representative and not necessarily of the aircraft or equipment involved. Information in any article may not be construed as incriminating under Article 31, UCMJ.

Contributions, comments, and criticisms are welcome. Write: *The MAC Flyer*, HQ MAC/SGFE, Scott AFB, IL 62225-5101, Autovon 576-3534 or area code 618-256-3534. The editors reserve the right to make any editorial changes in manuscripts which they believe will improve the material without altering the intended meaning.

Subscriptions are available from: The Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Changes of address for subscriptions mailing should be sent to GPO. Give both old and new addresses, including zip codes. USAF Active and Air Reserve Forces units establish requirements for the magazine through their publication distributor (DAPD). Other U.S. Military units should consult administrative directives. *The MAC Flyer* is published at an approximate ratio of one magazine for every five MAC aircrew members, and one for every twenty MAC Support personnel. Distribution X: OPR: HQ MAC/SGFE ISSN 0024-788X.

THE END IS HERE!!!

Do you do your Christmas shopping on the 24th? Do you mail your income tax return at the last minute? Do you walk into a movie theater as the credits roll? Do you do your best work under pressure? If you answer "yes" to any of these questions this notice is for you, "The Dedicated Procrastinator!"

Only a few more days until Thursday, 31 March 1988. We're offering you a golden opportunity to contribute something to flight safety; air your safety philosophy (we promise, no backlash), see your name in print, and boost your ego. See "The Rules " below.

IT'S TIME!!!

THE RULES

The 1988 MAC Flight Safety Writing Contest is conducted according to MACR 900-3 and these rules. All entries must be original, unpublished, and postmarked no later than 31 March 1988. Stories must be between 1,000 and 3,000 words long (about 6 to 14 double-spaced typed pages). Poetry should be about 75 to 100 lines. Entries must contain an *aviation safety/mishap prevention message*. Manuscripts must be double-spaced, typed and submitted in two copies. Identify entries by title only and attach a cover sheet showing the author's name, address, duty phone number and unit. The cover sheet must contain a brief autobiography.

The contest is open to anyone. Entries qualifying under the above rules earn their author a free one-year subscription to *TMF*. However, contest prizes (desk sets and plaques) may only be awarded to military members and civilian employees of the Department of the Air Force or Air Reserve Forces. Other entrants may be selected for Honorable Mention in a special category. All winning stories will be published in *TMF*. Entries should be addressed to:

Flight Safety Writing Contest
HQ MAC/IGFE
Scott AFB, IL 62225-5101

Ralph's Napkins: Worth Reading

Take a moment to ask and listen . . . .

By Capt. Robert R. Singleton
55 ARRS, Eglin AFB, Florida

Friday, 14 August, another night in heaven's very own "Aircrew Lounge." I slowly wound my way over to the giant TV screen. Tonight's show featured live coverage of inprocessing at an aircrew training course. I don't think any of us watching were at all concerned whether it was an Air Force, Navy, or Marine school; whether it was an F-18, C-130, or B-1 class; or whether those inprocessing were pilots, navs, loads, etc.; they were aircrew, that was enough for us.

I took a seat on the nearest empty cloud next to Doug, an ex-C-130 loadmaster, and a damn good one. Without giving it much thought, I asked him "Say, Doug, what would you tell them (nodding my head toward the TV screen) if you had the chance?"

"That's a good question, Robbie." He thought a minute, and continued, "Whatever it was, I'd want to make sure it was the best piece of advice I could possibly offer; heaven is real nice, but no sense having them come up here any earlier than necessary."

It didn't take long before a few of us were involved in a good discussion. What one thing would we pass on that would apply to all aircraft, all crew positions?

Would we emphasize procedures? Would we emphasize systems knowledge, proper crew rest, hazards of IMC and spatial disorientation, alcohol or visual illusions, particular techniques, or tactics? The consensus was a "negative" to all above. They were all either adequately covered in earth guidance, or not applicable to all aircraft, all crew positions.

Steve, an old C-130 nav, began to vent some frustration. "There is no way we can provide a one-liner for *all* aircraft, *all* positions. Those people down there have new systems, technology, procedures, and missions we don't even know about. The only thing we have in common is people, and even they've changed. Any advice we might give would be outdated, obsolete."

"People." I had stopped listening after "people." Without knowing it, Steve had hit the nail on the head. What did we have in common? I looked about me—Doug, the C-130 load; Dale, the Eagle driver; Steve, the C-130 nav; J.J., the Marine pilot; and Ralph, the H-60 driver. What did *we* have

in common? *People.* Every preflight, every flight, every postflight, every flight-planning session, every debrief. *People.* We should tell them about people. But tell them what? Steve had stated today's aircrews were somehow different; there was more technology and sophistication. That might be true, I thought, but regardless of aircraft or crew position, people are people, always have been, and always will be.

A few of us retired to the bar, refilled our glasses, grabbed a napkin, and began jotting down ideas. Some early agreements came to the fore; a lot of it based on experience. After all, we were all in heaven. How do you get to heaven? You die! A lot of us had done so in airplanes; we knew what we were talking about.

The napkin began to take on a life of its own....

—*Truth.* Oftentimes the younger guys knew something the older guys didn't.

—*Truth.* Oftentimes the less experienced guys knew something the more experienced guys didn't.

—*Truth.* Oftentimes the copilot knew something the aircraft commander didn't.

—*Truth.* Oftentimes the navigator knew the aircraft systems answer the flight engineer didn't know or the radio operator knew the flight procedure answer the pilot didn't know.

—*Truth.* Oftentimes the ground crew knew something the aircrew didn't know.

—*Truth.* Oftentimes the receiver crew knew something the tanker crew didn't know.

On to the second napkin for the *"Findings"*....

—*Finding.* Oftentimes the one who knew the answer wasn't asked.

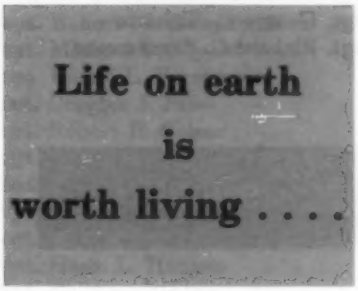
—*Finding.* Oftentimes the one who knew the answer didn't speak up.

—*Finding.* Oftentimes the one who knew the answer did speak up and wasn't heard.

—*Finding.* Oftentimes the one who knew the answer, who did speak up, was listened to, and subsequently ignored.

—*Finding.* Oftentimes if the one who knew the answer had been asked, if the one who knew the answer had spoken up, if the one who spoke up had been listened to—oftentimes aircrew members would have lived to fly again, instead of scribbling on napkins at heaven's Aircrew Lounge.

It was time for the third napkin; we put the heading *"Why"* at the top of this one.



—*Why.* People assume the older ones know more, the younger ones should learn—why ask, why listen to the younger ones?

—*Why.* People assume qualification equals knowledge and judgment; the higher have it, the lower do not, why ask the less qualified, why listen to the less qualified?

—*Why.* People assume knowledge is area specific; why ask the radio operator a "pilot question," why listen to him when he gives a "pilot answer," why ask the navigator an "aircraft systems question," why listen to him when he gives an "aircraft systems answer?"

—*Why.* People can be reluctant to speak up if they're younger, less experienced, possessed of lower crew qual, or operating out of their area.

—*Why.* People will choose not to listen, acknowledge, or act upon the thoughts of another crewmember.

Three napkins. The crowd was thinning; we topped off our glasses; kicked back and reflected awhile. We'd all experienced each of these truths one time or another. Each of us knew someone in heaven's Aircrew Lounge who had come here as a result of one of these truths. We'd stumbled onto something big; we felt it.

"Okay. We've identified some truths and some whys. What now?"

The last napkin. Our message to those folks on the TV screen. The one message we could give.

—If you must make an assumption regarding what people around you can contribute, assume they have an unlimited potential to contribute in a positive manner.

—Remain blind to age, experience, qualification, and area of expertise.

—Focus on, and listen to what's being said, not who's saying it.

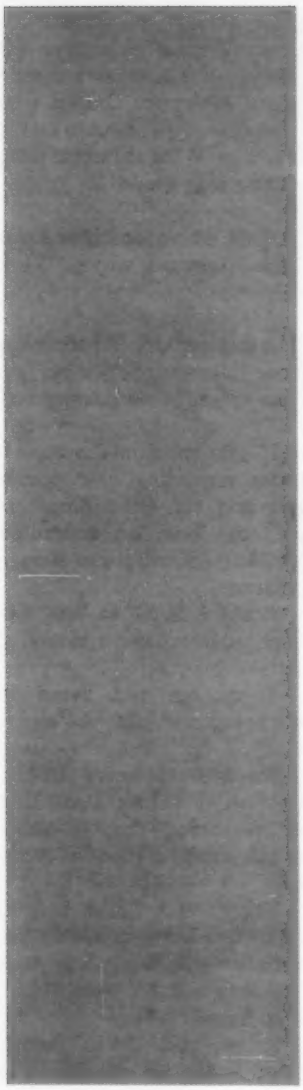
—Know, and never forget, that everyone knows something about everything. They just may know the missing piece to your puzzle.

—Know, and never forget, that while heaven may be nice, life on earth is worth living, it's worth a moment to ask, it's worth a moment to listen.

—Know, and never forget, that ego and pride can kill. The other guy may be right, you may be wrong, the other guy may know more than you. Accept it, be thankful, learn from it.

—In all your words and actions, demonstrate your belief in the above, *and live to fly again.*

Flying-Hour Milestones



7,500

Col. Keith T. Reiling
Lt. Col. Allen I. Cohen
Lt. Col. Anthony F. Stranges, Jr.
CMSgt. David L. Coldren
MSgt. William F. Harrison
MSgt. Saul L. Hershkowitz
MSgt. Robert E. Medrano
MSgt. George C. Ricketts
MSgt. Richard C. Zimmerman

5,000

Lt. Col. Stanley E. Mehrhoff
Maj. Charles V. Brown
Maj. William Cordeiro
Maj. Quentin J. Smith, Jr.
Maj. William C. Whaley
Capt. John R. Haszard
MSgt. Johnney Crittenden
MSgt. Terry L. Happ
MSgt. Gerald K. Massey
MSgt. Hugh E. Lamar
MSgt. Dennis C. Smith
MSgt. Daniel L. Yeppes

2,500

Col. Howard E. Mangin
Lt. Col. Dennis L. Angelisanti
Lt. Col. Howard M. Clark, Jr.
Lt. Col. Valentino M. Gonzales
Lt. Col. Paul A. Goubeaud
Lt. Col. Keith H. Keppen
Lt. Col. James W. Lancaster, Jr.
Lt. Col. James D. Lindsey
Lt. Col. Theodore F. Mallory, III.
Lt. Col. Kerry D. Roby
Lt. Col. Garld L. Sandlin
Lt. Col. Edward G. Saunders
Lt. Col. John E. Scanlon
Lt. Col. Richard H. Smith
Lt. Col. Kenton N. Swanger
Lt. Col. Samual E. Trunzo
Lt. Col. Robert A. Wilson
Maj. Louis Amadio
Maj. Thomas W. Archer
Maj. Richard E. Barr, Jr.
Maj. Marvin J. Barry
Maj. Steven W. Benda
Maj. David M. Blair
Maj. Stephen R. Blair
Maj. Roger J. Bordman
Maj. Edward F. Briggs
Maj. Edward F. Brown
Maj. Peter D. Brown
Maj. William T. Cheairs, III.
Maj. Joseph M. Claffey
Maj. William R. Cotney
Maj. Randall L. Crane
Maj. Robert J. Crawford
Maj. Russell Dennis, Jr.
Maj. James W. Enterline
Maj. Douglas M. Floresi
Maj. Frank R. Freeman, Jr.
Maj. Lawrence G. Fuchs
Maj. Patrick Gallagher

Maj. Jim Gerrish
Maj. Paul F. Gillis
Maj. Matthew J. Gioia
Maj. Douglas S. Gwyn
Maj. Randall R. Higginbotham
Maj. James Hinderhofer
Maj. Scott F. Hockensmith, III.
Maj. Garey E. Hudson
Maj. James G. Hutto
Maj. Thomas R. Irwin
Maj. Douglas B. Jensen
Maj. Joel C. Jones
Maj. William H. Jones, Jr.
Maj. Thomas L. Kelly
Maj. Donald L. Kennedy
Maj. Dennis L. Krug
Maj. Thomas L. Lahovski
Maj. Robert H. Leece, Jr.
Maj. James E. Lightfoot
Maj. Lapsley S. Lindamood
Maj. Niel L. Markussen
Maj. Robert J. Massey
Maj. Dorsey H. McCay, Jr.
Maj. Arthur J. McClelland
Maj. Rickey S. McLemore
Maj. Gerald E. Melton
Maj. Richard J. Middlecoff
Maj. Robert W. Mundle
Maj. James R. Nash
Maj. Grant B. Names, Jr.
Maj. Peter J. Patalak, Jr.
Maj. Freeman M. Phillips
Maj. George J. Prokopiak
Maj. Ronald W. Ransom
Maj. Gary H. Schisler
Maj. Kent D. Stephens
Maj. Wayne A. Stevens
Maj. Ronald W. Swierzbin
Maj. Thomas V. Tamez
Maj. Charles L. Thompson
Maj. Larry E. Voll
Maj. Robert E. Wallace
Maj. Edwin J. White
Maj. Danny W. Whitt
Maj. Chesley G. Wise, Jr.
Maj. Theodore S. Wortrich
Maj. James L. Zock, Jr.
Capt. Steven J. Becker
Capt. James W. Buck
Capt. Michael D. Buschko
Capt. Russell W. Carson
Capt. Thomas J. Cavanaugh
Capt. Frank A. Chernak
Capt. Bradley E. Creed
Capt. David C. Cunningham
Capt. David W. Daley
Capt. Robert M. Dunphy, II.
Capt. Michael D. Flynn
Capt. Darrel L. Forsberg
Capt. Charles J. Fries
Capt. Robert E. Geiser
Capt. Robert E. Ghormley
Capt. Gregory L. Griffin
Capt. Richard B. Hair
Capt. Kevin G. Hammond
Capt. Hugh L. Hodges
Capt. Thomas J. Ling
Capt. David W. McClarney
Capt. Charles E. Ramsey
Capt. James E. Randby
Capt. Robert C. Reilly, III.
Capt. Michael W. Silverman
Capt. Kim F. P. Skrinak
Capt. Jerry R. Walker
Capt. Douglas E. Yelencsics
1st Lt. Gino Greatti, III.
CMSgt. George S. Bradley
SMSgt. John R. Voss, Jr.
SMSgt. William B. Weber
MSgt. Gary T. Charlebois
MSgt. Richard J. Gold
MSgt. Richard W. Grossbohlin
MSgt. Ivan F. Guy
MSgt. Robert H. Hansen
MSgt. Francis J. Hirsch, Jr.
MSgt. Samuel G. Hubbard
MSgt. Thomas J. Irwin
MSgt. Dwayne Jacobson
MSgt. Bruce R. Koegler
MSgt. David A. Lock
MSgt. Harold E. Miller
MSgt. Robert G. Mynatt
MSgt. James W. Nichols
MSgt. Jeffrey C. Proulx
MSgt. Robert L. Rea
MSgt. Louis Sanford
MSgt. Bernard Schmidt
MSgt. Donald E. Skipper
MSgt. Gordon E. Smith
MSgt. Richard G. Socha
MSgt. Gregory F. Stone
MSgt. Frank J. Troiani, Jr.
MSgt. James T. Wallace
MSgt. Clarence S. Walters
MSgt. Jacqueline M. Zenko
TSgt. Edward J. Albert
TSgt. Robert D. Barnhart
TSgt. Terry L. Budge
TSgt. Edward J. Correa
TSgt. John A. Flood, III.
TSgt. John L. Fly
TSgt. Albert T. Golasa
TSgt. John W. Grunert
TSgt. Paul D. Handling
TSgt. Duane B. Hansen
TSgt. David E. Holman
TSgt. Michael R. Johnson
TSgt. Keith A. Knepp
TSgt. Albert C. Maglio
TSgt. Otha Perrin, Jr.
TSgt. Zena A. Smith
TSgt. Joseph E. Sumner
TSgt. Willy Weller
TSgt. John J. Windfelder
TSgt. Michael W. Young
SSgt. Robert L. Alasevich
SSgt. David E. Holman
SSgt. John W. Jackson
SSgt. Stanley Rothwell

Ranks and units are those at time of award submission.
See MACR 900-3 for details on how to apply for your own milestone award.

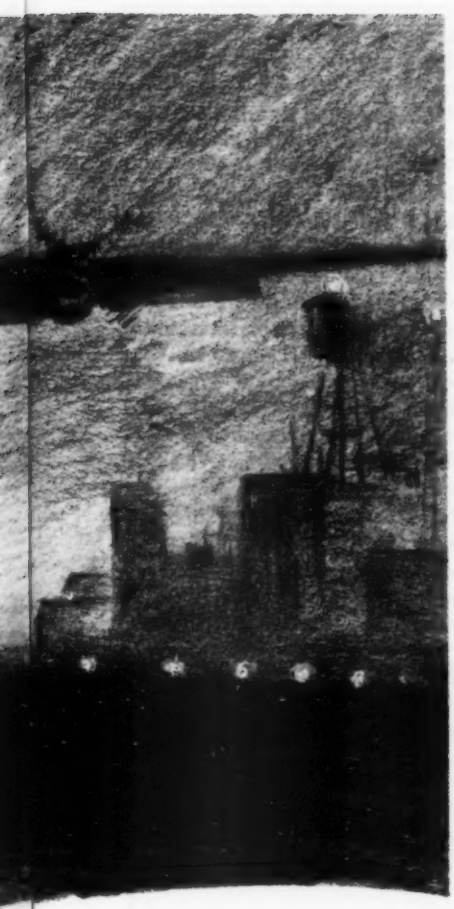
Hey, Bubba!

The decision to "interfere" was based on safety.

By Major Thomas W. Houle
312 MAS (Assoc)
Travis AFB, California

I didn't want to buy them. I mean, I wasn't that old. The orders had arrived in my vertical file a week ago. It just didn't seem like 15 years since I'd started flying. Those guys with command wings were always just those "old heads" to me. I pictured myself standing next to my T-38. I was still a young pilot; I didn't belong to the C.R. Terror group yet. This image of myself was reinforced in my civilian airline job. There, the captains were always older than I. There, I was still the "young copilot." All this reinforced the idea I wasn't quite ready to pin those different wings on. It was something I could put off until I returned from my overseas trip,

1987 MAC Flight Safety Writing Contest. Honorable Mention



scheduled to leave in two days.

When the scheduler said, "Have I got a great deal for you," I knew I was in trouble. I had planned for a year to take this trip during my vacation. It was a perfect four-day, four-leg trip. I'd have three days off before I had to return to work. It was too good to be true. So, when the scheduler said those magic words, I knew it *was* too good to be true. The mysterious "they" had tacked a Special Assignment Airlift Mission (SAAM) on the Yokota end of our simple out and back. This SAAM made the overall trip 11 days long, which required 15 days availability. I didn't have that much time available. I could see a year's planning going down the tubes. But as all good schedulers do, Captain Good Deal had a way out. I could simply jump off the trip the second time into Yokota. The newly qualified copilot could finish the mission. He said, "There's always something coming back from Yokota," so I wouldn't have any trouble coming back. Yeah, *the check is in the mail; the crew bus is on the way; I am the regular crew chief.* I didn't have much faith in the scheduler's plan, but didn't know how to refute it.

Amazingly, everything went as planned. I jumped off the mission at Yokota. During the next three days, I got to know the duty controllers in the command post intimately. I was calling them every four to six hours. Each time I called, it was an entirely different story. I was getting more anxious. I only had two days left before I had to be back at work. At the last possible moment, the command post had a C-141 going back to McChord. They might be able to find room on it for me if I wanted. Little did I realize what I'd have to go through before I got home. At least the cramped flight to McChord in the back of the C-141 was uneventful.

It was still a misty two hours before sunrise when we landed at McChord. Thankfully, the fog dissipated long enough for us to get in. When the crew checked in at the command post window, I was initially disappointed to find there was nothing scheduled for Travis. Then, the captain came out from the command post into the flight planning room and said there was a C-130 leaving in two hours going to Travis. Finally, something appeared to be going my way.

I'd forgotten what it was like to be on the Herk; 3,500 hours experience comes back quickly. I'd switched to the C-5 only 4 years ago. The thing that amazed me most was to see an almost all-lieutenant crew. The AC had just been promoted to captain, and he was being congratulated by the rest of the crew on his promotion to captain as I walked up and introduced myself. They had a routine two-hour mission to deliver troops to Travis. The weather was scheduled to be good, therefore, they were taking minimum fuel. This seemed a bit strange since, during winter, the whole Sacramento valley can fog in at sunrise at a moment's notice. With many San Francisco airports available, it wasn't critical but it seemed like poor judgment not to at least carry enough fuel for a distant alternate.

When the crew contacted Travis approach, we heard a C-141 go missed-approach. The weather was reported as indefinite obscured and quarter mile visibility, variable zero visibility. Up until this point, it had been been routine. Even though the crew was inexperienced, they seemed well trained. I was relaxed sitting on the flight deck next to the young navigator. I knew proper etiquette for a passenger. Sit down, shut up, and be happy for the ride. I knew we'd probably divert to one of the nearby bases. I was surprised when the AC seemed indecisive about what to do and entered holding at Travis. Fuel wasn't a problem yet, but there were only about 20 minutes left to play with. The controller kept asking the AC what he wanted to do. I was tempted to speak up and offer some advice, but didn't feel it appropriate yet. It wasn't unreasonable to enter holding to talk things over.

Things were starting to happen faster now. Even though I had been up over 30 hours, my senses where starting to perk up. Adrenaline was just starting to flow. I could see the crew falling into some classic traps I thought everyone knew about. The AC was

isolated from the crew. He was directing everything to be done, yet wasn't receiving good inputs from crewmembers not directly involved in flying. Even though the crew appeared to be young, they had a wealth of experience available to them. The flight engineer was a technical sergeant who obviously had lots of experience. The 10,000-hour patch above the loadmaster's MAC patch really said it all. In fact, he was a chief master sergeant and wing standardization loadmaster. But the direction of all communication was coming from the left seat. The aircraft commander wasn't seeking inputs or opinions from the rest of the crew. Things weren't critical yet so there was still plenty of time left to review the situation.

This crew was the perfect example of a recent NASA study about decision-making on the flight deck. *They weren't making decisions. They were not announcing any decisions. They were not studying the consequences of those decisions.* Finally, they were not reevaluating their decisions based on new data. The situation was cut and dried. We should have diverted. But the next thing I heard was the controller restating the weather and asking the AC if he really wanted to shoot the approach. *The AC said "Yes."*

Well, this is it. I had to make a decision, even though I was a passenger and not qualified on the airplane anymore. The decision to interfere was based on my own safety. I had a responsibility to these crew members to share my knowledge even though they weren't aware of my qualifications. It was time to call on my old friend "Bubba."

To correct the problems brought out or problems revealed by the NASA study, the people teaching Aircrew Resource Management at the 349 MAW came up with the "Bubba Review." It stemmed from the joke about the AC who couldn't remember the copilot's name. So, he decided he would be "Captain Sir," and he would call all his copilots "Bubba." Like, "Hey Bubba, let's go to the club." The Bubba Review consisted of three basic questions.

1. What's the decision?
2. What are the consequences of that decision?
3. Now, is there a new or better decision?

I felt this Bubba Review was important so I'd copied it and carried it in my flight suit pocket. I never thought I'd use it as a passenger with a C-130 crew. I was going to have to be fast because we were already turning base with the weather still reported below minimums. First, I checked the navigator's copy of 55-130 to insure regulations hadn't changed since I left. I didn't call for a Bubba Review (since they wouldn't know what it was) but I started asking questions. I'd never had to use Bubba in a real life situation, so I wasn't sure how it would be received by someone who hadn't gone through the 349 MAW ARM program.

When there was a quiet moment, I asked the AC what was his decision. He said we were going to shoot the approach to a field below minimums. Quickly, we discussed the consequences of that decision. We talked about violating regulations, possibly being downgraded after he just made AC, and/or possibly crashing the airplane in marginal weather conditions. You could see the light bulb go on over his head. The navigator said he now remembered something in 55-130 about not shooting an approach to a field below minimums. The flight engineer complained also; even if the regulation didn't say anything about it, it sure didn't seem like a good idea. Anyway, those Army troops could drive over from McClellan or Mather in about an hour or so; the mission wouldn't be delayed much. I saw the crew moving in the right direction now so I only had to ask those two questions. My friend Bubba came through like a champ. Not only did he remind the crew to look into the regulations, but also resolved the immediate crisis of making an illegal approach to a field below minimums. The most important thing was he allowed the aircraft commander to start fully utilizing all available resources. They broke off the approach, went to the holding pattern, and decided to divert immediately. Even though it took longer to get back to Travis, we arrived safe and sound.

On my way home, I stopped and purchased my command wings. I knew then I deserved to be called an "old head" because I had my friend Bubba in my pocket. ★

Maj. Thomas W. Houle is a 1970 Citadel graduate. While on active duty, Major Houle flew HC-130s with the 38 ARRS, Kadena AB, Japan; the 41 ARRS, McClellan AFB, California; and instructed at the formal school at Kirtland AFB, New Mexico. He also served as an exchange officer with the Coast Guard and the 129 ARRS, California Air National Guard. Currently, he is assigned to the 349 MAW as a C-5 aircraft commander. He is also an instructor in the wing's Aircrew Resource Management Program. In his civilian job, he's a first officer for Pacific Southwest Airlines on the MD-80.

A CLEAR VISION TO SUCCEED

What can I do to succeed?

"Mac," the young copilot asked, "you seem to be relatively successful. I mean you're an instructor, you have a numbered air force job, and the enlisted folks respect you. What can *I* do to succeed?"

Mac MacKenzie cast a sheepish grin at the lieutenant, and took another sip of beer. In his mind, he was sighing, gathering thoughts, and honestly laughing at his predicament.

The two were sitting in a quiet lounge attached to the contract quarters they'd been bussed to. What precipitated the question was the lieutenant's feelings of lost confidence. Mac was conducting additional training on this mission to clear a Q-2 his copilot was carrying for lack of crew coordination.

During a recent instrument check, the copilot was flying a good circling approach. The evaluator had called field in sight, and the lieutenant had set up a right downwind; everything was wired. One more configuration check revealed the left mains in-transit. The examiner directed the copilot to turn left and execute a constant speed climb to 1,500 ft AGL while he called tower for clearance.

Once stabilized, the loadmaster checked for a good indication, but the window was crazed and greasy, making an accurate call impossible. The lieutenant suggested recycling the gear handle, to which the examiner (never missing an opportunity for another question) asked him if there wasn't some kind of warning in the Dash One about once the gear's down, leave it down. In the same breath, he asked the engineer to get the book out.

While the FE was looking for the page, the examiner was explaining the problem to command post. Just then, the lieutenant said "Aw, screw it!" and slammed the gear handle up. As the familiar sounds of gear-in-transit filled the air, the examiner and engineer looked with shock at

the copilot—looking back, grinning from ear to ear!

When the gear was up, the lieutenant broke the deafening silence with: "I just wanted to prove to you that recycling ought to be the first step in any emergency!"

Again, a deafening silence; only now the flight examiner's expression was no longer one of surprise. The lieutenant recalled it as one of the *HARDEST* looks he had ever seen. It seemed at least 8 hours before the examiner finally spoke. When he did, the words came from a beet-red face with a noticeable tightness in the jaw and neck muscles. Furthermore, the words squeezed through those, ever so tightly clenched teeth, were quiet, in a monotone totally void of emotion, and burned permanently in that lieutenant's brain. It went like this:

"I HAVE THE AIRCRAFT CONTROLS! YOU ARE TO SIT THERE WITH YOUR HANDS ON YOUR LAP! YOU ARE TO TOUCH NOTHING UNLESS DIRECTED, BY ME, TO DO SO. YOU ARE NOT TO TALK UNLESS ASKED A QUESTION. YOUR EVALUATION IS TERMINATED!"

The examiner and engineer researched the Dash One and confirmed their conclusions and plan with a local Conference Skyhook. They lowered the gear and got the same in-transit indication. A military trainer joined on them reporting what appeared to be safe gear. The landing was well planned, briefed, and executed without incident. Maintenance easily found the broken ground wire, but the copilot's trouble was just beginning. The examiner hadn't said a word to him, other than checklist responses, since terminating the evaluation.

He finally got the opportunity to hear the flight examiner the next morning in the commander's office. What the examiner said impressed the young pilot: "Your poor knowledge of Dash One emergency procedures and the landing gear system is, in fact, forgiveable. Systems knowledge weaknesses are quite common to new pilots, we can fix that with a little more training. What concerns me most is your total lack of crew coordination."

At this, the lieutenant was surprised. He thought surely he'd get nailed for emergency procedures or systems; crew coordination never crossed his mind.

The examiner continued, "While this particular emergency procedure wasn't as serious as others, your performance was indicative of a most unsettling attitude. In effect, you consciously chose to strike out on your own . . . you thought you knew the right answer . . . and whether or not you did isn't important. The fact you chose to take action without coordinating with the crew makes me wonder what else, in this crew airplane, you would choose to do."

The examiner turned to the operations officer and recommended a Q-2, additional training in aircraft systems, particularly hydraulics, landing gear, and warning systems; a thorough review and closed book exam on emergency procedures; and finally, a lengthy discussion with an instructor on crew coordination.

The ops officer agreed and said Mac MacKenzie was taking a five-day round-robin the next day and he'd send the lieutenant along.

So here they are, in the lounge, with Mac still wondering how to handle the original question about his own "so-called" success. He looked inquisitively at the young lieutenant and asked, "I'm still wondering, what ever possessed you to throw that gear handle up?"

"Well," said the lieutenant with a sheepish grin, "I now know why, systems wise, I shouldn't

have done it. But, at the time, I guess you can say I just lost my patience with the rest of the crew. I mean, here we had what seemed to be a fairly simple problem, one that certainly didn't need a lot of 'booklookin;' we had a safe indication before. I thought surely recycling would fix it."

Mac replied, "The key phrase is when you said you lost your patience with the rest of the crew. All aircraft commanders lose patience with the crew, it's how they react to that feeling that results in failure or success. You see, the crew position with the steering wheel is the most likely culprit to steer the machine into a mountain, ocean, runway, or whatever. You name it, they've done it. This validates and perpetuates the fact that a pilot carries the greatest responsibility on his or her shoulders. Plane crashes, late takeoffs, off the zone drops—it's the pilot who gets blamed. That's not to say there isn't a good side to this coin. It's also the pilot who gets credit for mission completion, a string of on-time takeoffs, how an emergency was handled, et cetera. So the payback is there, both reward and punishment, so let's not dwell on the pilot's lot. Instead, let's get one fact right up front: a crew airplane has never crashed by crew position! Every aircraft that took off on time did so with an entire crew, and with the efforts of each crewmember."

"But," the lieutenant interrupted, "what if it's something really important? The AC has to move really fast then, right?"

"Now you're starting down the path, that's good; but, what is, as you say, really important? You see, making that judgment call accurately *is* your key to success."

"I think I see what you mean.

Just then, the lieutenant said "Aw, screw it!" and slammed the gear handle up.

A small stream of oil running along a nacelle would appear pretty important to a passenger, but. . . ."

Brad finished the sentence, "and it is. However, to a crew, it initiates a series of actions that may go no further than thought and sight. The loadmaster would start watching it; the engineer would start paying attention to that engine's oil quantity, temperature, and pressure; the nav would be measuring distances to alternates; and the pilots would be thinking about 3-engine driftdown and cruise ceiling. In fact, you might notice the pilots are relying on each and every crewmember for inputs, AND NOBODY REACHED OUT AND CAGED THE ENGINE!

"This is my point! Making that judgment call is a conscientious action based upon thorough, as you say, *'booklookin,'* and more. I'll call it *'bookknowin.'* Flying the airplane is much, much more than stick and rudder inputs. It's one judgment call after another; a constant decision-making process where you rely on all the crew to make inputs. I know you've heard the cliche 'knowledge is power.' Well, in this case, insert the subject of the question you asked—relatively successful; knowledge *is* success!

"Now take it one step further. That ever so valuable 'knowledge' comes from many sources and you *must* master the ability to tap each of them. No one I know of has memorized the entire Dash One, but I know those who can quote a specific page and paragraph and speed up the search for an answer. The books are only one source. The combined wealth of information and experience encompassed by all crew positions is yet another terrific source of information, as are your own experiences. You must capture knowledge to reach success; you must do what's necessary to learn as much as you can; and finally, augment your knowledge by coordinating with the crew."

The lieutenant sighed and said, "Nobody's said it like that before. I guess I always thought you studied the books to pass the tests, and the rest of the crew did their own thing and didn't need or want my interference. I certainly didn't want theirs.

"The term 'crew coordination' was somewhat confusing to me before, I thought it meant checklist actions. I see now that it means a lot more. Thanks!"

"No problem. It's why I get that extra instructor's pay every month. Without it, I couldn't make the mortgage. By the way, it's your turn to buy."

About Leadership

Success or Disaster?

(Director's Comments: The old familiar discussion that every officer/pilot is evaluated on his potential as a future Air Force Chief of Staff is still being discussed in squadrons, cockpits, and flight line snack bars with, apparently, more intensity and enthusiasm than ever. But, whatever your career path, here's a

By Col. John C. Stafford
Assistant Adjutant General
Alaska Air National Guard

formula for success that will serve you as a crewmember, staff officer, or commander. And, as a crewmember, if you develop your skills in these 10 areas, it may save your life. This is exactly the type of article we encourage our readers to submit.)

In 25 years of flying, it was the only time I'd fallen out of the sky. The lives of eight men, the safety of cargo, and the plane were all at stake. One man's ability to lead could make the difference . . . ahead was a safe landing or total disaster.

You had to see a C-124 fly to be convinced that it could. Built for outsized cargo, it had a three-story-tall fuselage dwarfing long, thin wings, and four reciprocating engines. Fully loaded and in flight, it had a lot in common with a bumble bee—it defied the laws of gravity.

Early in my career, I was navigating "Old Shaky," as we used to call the C-124, on a night flight across the Pacific. The leg between Hawaii and California was 2,000 miles and 10 hours long with nothing below but water. Heavily loaded and 1,000 miles from land, our problems began with an engine shutdown. Our copilot quickly got on the radio to declare an emergency and we descended to a lower altitude. As a precaution, we donned our life vests, reviewed ditching procedures, and our loadmaster briefed the extra crewmembers on the cargo jettison plan.

We had all been through this before; it was almost routine. However, we couldn't help feeling a little uncomfortable this far from land in the middle of the night. As we girded ourselves for the long flight ahead, our flight engineer broke the silence with an announcement we didn't want to hear; there was a bad oil leak on another engine. We'd probably have to shut that one down, too, before we reached land. We all knew flying on three engines was difficult, but flying on two engines wouldn't be possible unless we could jettison some cargo.

The next few hours were agonizing. As oil continued to flow over the cowling of the failing engine, I saw some of the extra crewmembers trying to sleep; some pacing the floor in the cargo compartment; one on his knees praying. Through all this, our aircraft commander calmly directed the activities of each crewmember. We knew the AC had a lot of experience, and it was reassuring to see him unperturbed by this crisis.

As we approached the California coast, our flight engineer reported the failing engine was nearly out of oil; he'd have to shut it down to avoid an engine freeze-up and possible fire. Our aircraft commander briefly considered the situation, and then gave his orders: "Engineer, keep the engine running, but be prepared to shut it down on my command; Copilot, get back on the radio and tell them we're going to shut down another engine as soon as we reach land."

Thinking ahead, our aircraft commander reminded us our fully-loaded plane would not stay in the air on two engines. Adding to our problems, we couldn't jettison any cargo once we got over land. He warned us that as soon as we feathered the next engine we were going to go down.

As we reached the coastline, he gave the order to shut down the second engine. We went to maximum power on what we had left, but it wasn't enough. Just as predicted, Old Shaky started to fall from the sky.

Our descent seemed to last for only a few minutes, but it was long enough to get close to an Air Force base. Nearing the ground, we could see fire trucks and crash equipment rolling out to the runway to meet us. Flying our plane with two engines screaming and two engines feathered, our aircraft commander made a flawless approach and landing.

At last, we were down . . . nobody was hurt and all the cargo was still on board. The fire trucks followed us as we taxied, uneventfully, to a parking spot.

Later, when I complimented our aircraft commander on the job he'd done, he said it was no big deal. He said he was trained to handle just that type of emergency and, he pointed out, so was the rest of the crew.

Air Force Pamphlet 35-49 lists 10 basic principles of leadership. They are:

1. Know your job.
2. Know yourself.
3. Set the example.
4. Care for people.
5. Communicate.
6. Educate.
7. Equip.
8. Motivate.
9. Accept responsibility.
10. Develop team work.

How many of these principles did you see the aircraft commander use in the story above? Fortunately for me, *he was proficient in all ten.* ★

1987 MAC Safety

MAC Flight Safety Achievement Award

Presented to all mishap-free units with an effective flight safety program during the award year. (Colocated units share in the award.)

Category I

62 MAW & 446 MAW (Assoc), McChord AFB
89 MAW, Andrews AFB
314 TAW, Little Rock AFB
435 TAW, Rhein-Main AB
437 MAW & 315 MAW (Assoc), Charleston AFB
438 MAW & 514 MAW (Assoc), McGuire AFB
443 MAW, Altus AFB
463 TAW, Dyess AFB
1550 CCTW, Kirtland AFB

Category II

7 SOS, Rhein-Main AB
10 MAS, Zweibrucken AB
20 AAS & 21 TAS, Clark AB
37 ARRS, F. E. Warren AFB
53 WRS, Keesler AFB
58 MAS, Ramstein AB
345 TAS, Yokota AB
616 MAG, Elmendorf AFB
1400 MAS, Norton AFB
1403 MAS, Yokota AB

Category III

Det 2, 37 ARRS, Ellsworth AFB
Det 3, 37 ARRS, Grand Forks AFB
Det 5, 37 ARRS, Malmstrom AFB
Det 7, 37 ARRS, Minot AFB
Det 8, 37 ARRS, Vandenberg AFB
Det 9, 37 ARRS, Whiteman AFB
Det 10, 37 ARRS, F. E. Warren AFB
Det 1, 1400 MAS, McClellan AFB
Det 4, 1400 MAS, Kirtland AFB
Det 5, 1400 MAS, Nellis AFB
Det 1, 1402 MAS, Langley AFB

MAC Distinguished Flying Unit Safety Award

Presented to the best unit from among those receiving the MAC Flight Safety Achievement Award.

Category I

314 TAW, Little Rock AFB

Category II

7 SOS, Rhein-Main AB

MAC Support Safety Achievement Award

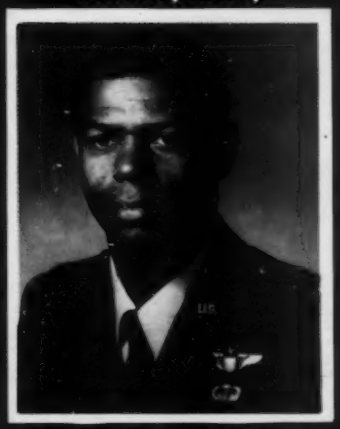
Presented to units designated or functioning as military airlift support squadrons/groups and mobile aerial port squadrons. Units selected must have exceptional quality of services and successful mishap prevention programs.

2 MAPS, Little Rock AFB
7 MAPS, McChord AFB
603 MASG, Kadena AB
611 MASG, Osan AB
619 MASS, Hickam AFB
628 MASS, Incirlik AB

y Award Winners

MAC Safety Officer of the Year Awards

Primary Duty



Maj. Robert M. Bolton
322 ALD, Ramstein AB

Additional Duty

Capt. George M. Christensen
10 MAS, Zweibrucken AB

MAC Safety NCO of the Year Awards

Primary Duty

TSgt. Richard K. Scheick
608 MAG, Ramstein AB

Additional Duty

MSgt. Robert L. Cummings
313 APS, RAF Mildenhall

TMF Instrument Quiz

This month's quiz may be difficult for some, easy for others but, hopefully, fun for all. We went to the DOD FLIP *Flight Information Handbook* and compiled a list of some of the rarely used, yet important to have when needed, numbers. We hope you enjoy this month's quiz!

1. Keying either 121.5 MHz of 243.0 MHz for _____ seconds or more will activate SARSAT. Any activation initiates ground processing to locate the activating transmitter. Transmissions on these frequencies must not exceed a _____ second keying limit except in actual emergency or distress situations.

   a. 20, 10
   b. 30, 15
   c. 45, 20
   d. 60, 30

2. The normal navigational aid spacing for airways/routes below 18,000 ft MSL is _____ nm and the protected airspace area has a total width of 8 nm, 4 nm each side of centerline, within _____ nm of the facility.

   a. 80, 51
   b. 130, 65
   c. 130, 51
   d. 80, 65

3. A report shall be made to ATC when an aircraft is unable to descend/climb at a rate of at least _____ ft per minute.

   a. 1,500
   b. 1,000
   c. 500
   d. Report not required

4. A report shall be made to ATC when a change in average true airspeed varies by _____ percent or _____ knots (whichever is greater) from that filed in the flight plan.

a. 10, 5
b. 10, 10
c. 5, 5
d. 5, 10

5. When not in "Radar Contact," a report shall be made to ATC anytime it becomes apparent that an estimate as previously submitted is in error in excess of _____ .

a. 10 percent.
b. 10 minutes.
c. 3 percent.
d. 3 minutes.

6. Oceanic Position Reports for flights predominantly East and West shall be made over each 5 degrees or 10 degrees longitude, extending East and West from 180 degrees. Use 10 degrees if the aircraft's speed will cause it to traverse 10 degrees within _____.

a. 1 hour, 20 minutes.
b. 1 hour, 15 minutes.
c. 1 hour.
d. 30 minutes.

7. Absence of a sky condition/ceiling and/or visibility on ATIS indicates a sky condition/ceiling of _____ ft or above and visibility of _____ miles or more.

a. 3000, 3
b. 3000, 5
c. 5000, 5
d. 5000, 3

8. In areas under FAA jurisdiction, should the pilot of an aircraft equipped with a coded radar beacon transponder lose two-way radio capability, the transponder should be adjusted to reply on Mode 3/A, Code 7700 for _____ minute(s) then Code 7600. Repeat this process each _____ minute(s).

a. 15, 15
b. 15, 1
c. 1, 1
d. 1, 15

9. The suggested method of operating standard FAA Approved Radio Controlled Lighting systems is to always key the mike _____ times initially.

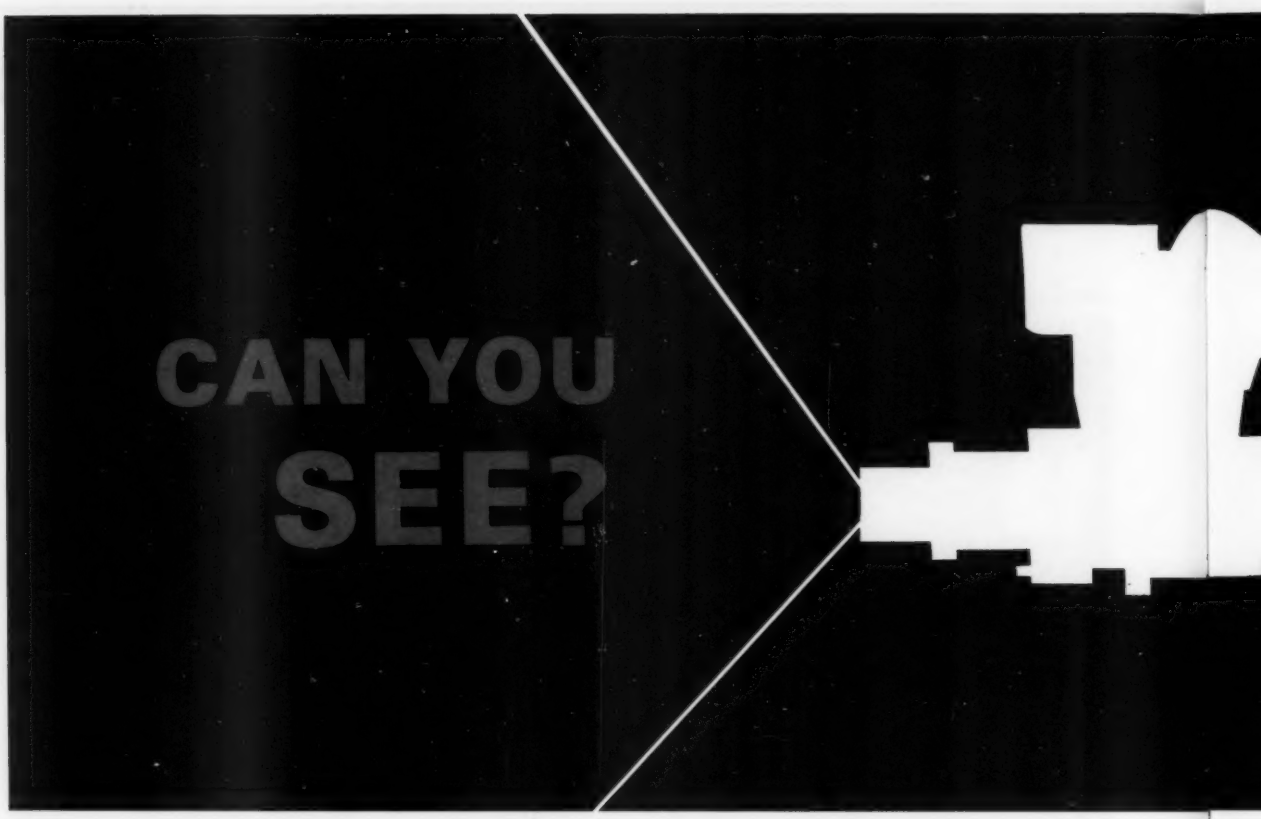
a. 3
b. 5
c. 7
d. 10

10. Various click repetitions provide different types and intensities of Radio Controlled Lighting; however, what is constant is the desired number of clicks must be completed in _____ seconds and will illuminate the chosen lighting for _____ minutes.

a. 5, 10
b. 5, 15
c. 10, 10
d. 10, 15

ANSWERS

1. b. FIH, pg A-5, para 2.
2. a. FIH, pg B-3, para 2. a.
3. c. FIH, pg B-7, para 1. d. (1)(c).
4. d. FIH, pg B-7, para 1. d. (1)(e).
5. d. FIH, pg B-7, para 1. d. (2)(b).
6. a. FIH, pg B-10, para 3(a)(1).
7. c. FIH, pg B-16, para 3.
8. d. FIH, pg A-6, para 5. a. (1)(B).
9. c. FIH, pg B-19, para c.
10. b. FIH, pg B-19, para a.



ARE YOU SURE?

(Editor's Comments: Though written from the Army's perspective, the limitations of using NVGs are well portrayed for all.)

Have you ever driven your car at night in a heavy rainstorm, wanting to get home but feeling a little uneasy because the windshield wipers weren't keeping up with the rain, and you really couldn't see too well? There you were, zipping along at 50 to 55 mph, hoping the road ahead was clear and rationalizing you could see "well enough," that "the rain would soon stop," or if you kept up your speed you "would soon drive out of it." Now let's take it a step further. Have you ever flown a helicopter when conditions were such you really couldn't see very well, and said to yourself, "I can make it; it really isn't that bad, and in just a few more minutes I'll be there?"

From 1 Oct 1979 through 10 Aug 1987, 30 Class A (U.S. Army, Ed.) flight mishaps occurred while crews were using night vision devices (NVD). Of these 30 Class A mishaps, 27 (90 percent) occurred when the moon was less than 30 degrees above the horizon or its surface was less than 23 percent illuminated. Additionally, 36 of the 41 fatalities (88 percent) occurred in these same conditions.

Under illumination conditions of less than the 23 percent or 30 degrees mentioned above, the AN/PVS-5A night vision goggles' (NVG) electronics are operating at their maximum sensitivity and the faint image produced is obscured by "sparkles" (video noise). Driving your car in a heavy rainstorm when the windshield wipers aren't capable of keeping the windshield clear could be compared to flying with AN/PVS-5A NVGs in these low ambient light conditions—you're exceeding the equipment's capabilities. Low-light levels and electronic noise

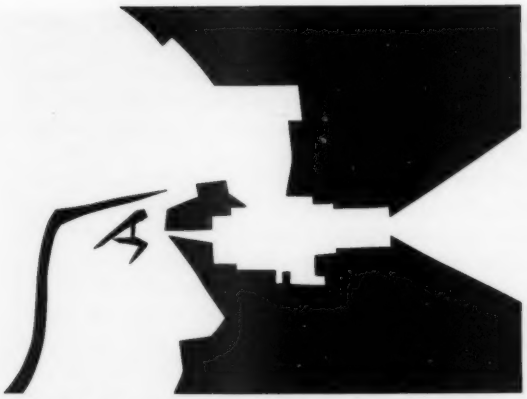
produced by the system result in a poor image of far less sharpness or contrast. The result is inability to see some obstructions, depending on the object's backdrop. Two of the most critical factors for safe NVG flight are sufficient contrast and adequate visual cues. Without these the pilot must rely, to varying degrees, on cockpit flight instruments to maintain aircraft control. Flying with AN/PVS 5A NVGs during periods of insufficient ambient light greatly increase the probability of the crew encountering some form of spatial disorientation. The pilot doesn't receive adequate visual information from "through the tubes" viewing to safely fly the aircraft when the field of view is void of contrast and cues encountered in low-light conditions.

In these accidents, there was either very low ambient light, no ambient light, or the terrain was "shadowed" because the moon was less than 30 degrees above the horizon. The stage is set for an accident when using AN/PVS-5A NVGs in such conditions because the NVGs amplify available ambient light only. They don't "create light." When there is very low or no ambient light, NVGs aren't capable of providing the pilot visual "through the tubes" cues he needs to fly safely. This condition exists with both AN/PVSD-5 series NVGs and AN/AVS-6 (ANVIS). However, since ANVIS amplify available ambient light three to four times more than the AN/PVS-5s, and their greatest sensitivity is shifted to the near infrared region of the electromagnetic spectrum where dim starlight radiation is very plentiful and usable, they provide the pilot far better visual cues in ambient light conditions. However, even with ANVIS, when there isn't any ambient light the equipment isn't capable of providing the pilot sufficient "through the tubes" visual cues to fly safely.

Flying in these low-light conditions over featureless terrain void of contrast (rolling deserts, large open areas, snow-covered fields) and large bodies of water without shoreline references with AN/PVS-5A NVGs may be an unacceptable risk. There is very little, if any, contrast or visual cues. You can't fly a helicopter for very long without adequate cues to detect relative motion and to "fix" your position in space. Accident potential is very high if you attempt flight with AN/PVS-5A NVGs over these types of terrain, in these ambient light conditions, or when there is no visible horizon present.

The only way an aircrew can operate in these types of conditions with reduced risk is to use a combination of instrument flying and "through the tubes" viewing. However, as it gets darker and less contrast becomes available, the crew must exclusively use aircraft instruments to maintain reference in space. Because of this, it's absolutely essential that any missions contemplated with AN/PVS-5A NVGs in these conditions adequately consider NVG limitations and the significantly increased risk involved. Also, it's important the aircraft be equipped with adequate NVG-compatible flight instrument lighting adjusted to the lowest usable level, NVG-compatible radar altimeters, and an external infrared (IR) or pink light filter on a landing or search light. In addition, for extended flight in these conditions, the aircraft should be equipped with some type of automatic flight stabilization system.

The bottom line is that with NVGs in use, the majority of Class A night aviation accidents occurred when the moon's surface was less than 23 percent illuminated or it was less than 30 degrees above the horizon. These ambient-light conditions were probably the best that could have been present and didn't include any restrictions to visibility (haze, fog, rain) or cloud cover. Also, most of these accidents occurred with AN/PVS-5A NVGs in use. So, if you have to decide whether ambient conditions are adequate to perform an NVG training mission with reduced risk, ask



yourself, as a minimum, the following questions:

—What type of night vision device will I use?

—To the best degree that I can determine, what are the ambient-light conditions for the mission?

—Over what sort of terrain will I fly?

—Is the terrain void of contrast and visual cues?

—If the terrain is void of adequate contrast, either because of insufficient ambient light or because there aren't adequate visual cues available, is the aircraft equipped with NVG-compatible lighting for flight instruments, NVG-compatible radar altimeters, and an external IR light source? Is the crew capable of flying instruments?

—If the mission is planned over a large body of water, is there any other way it can be accomplished and not involve over-water operations?

Now, after asking these questions, the most important task remaining is to decide if you're willing to accept the significantly increased risk of flying AN/PVS-5A NVG training missions in low ambient light conditions over featureless terrain or water. Perhaps the risk isn't worth any limited benefit you may derive. What do you think? Can you see? *Are you sure?*

OTHER POINTS TO REMEMBER

—When the field of view is void of contrast or visual cues, the brain receives insufficient data.

—In low ambient light conditions with poor visual cues, closure rates are extremely difficult to ascertain.

—Aircrew teamwork is essential.

—Recognition of actual altitude can sometimes be difficult with good contrast and is always difficult with poor contrast.

—Depending on ambient conditions, altitude verification may only be possible by a combination of "through the tubes" and flight instrument information.

—Low-level, countour, and NOE operations over areas of differing contrast require a series of different visual scan and cue techniques for proper orientatin.

—Areas of good contrast provide motion cues at a greater distance and altitude, providing additional time to respond and correct for deviations.

ONE LAST THOUGHT

With the slowness in fielding the ANVIS, what can the aviation community do to enhance its ability to operate more effectively and safely at night? Part of the answer may be in the form of AN/PVS-5B and -5C NVGs. These NVGs have an improved objective lens that gathers 25 percent more available instrument light than a new set of AN/PVS-5A NVGs. Since aviation AN/PVS-5A NVGs are a high-use item, the actual light amplification/intensification and image produced may be only 70 to 80 percent of a new/zero time system. By replacing "old" AN/PVS-5A tubes with AN/PVS-5B or -5C tubes, a total increase in light amplification/intensification of 40 to 50 percent could be realized.

The improved AN/PVS-5B and -5C NVGs are being fielded at a substantial rate and have been designated for ground units. Aviation unit commanders using the chain of command could request authority to switch the tube assemblies from the new full-face plate AN/PVS-5B and -5C NVGs to their cutaway or GX-5 flip-up NVG mounts. The tubes removed from the aviation AN/PVS-5A NVGs could then replace those removed from the full-face AN/PVS-5B and -5C NVGs. In this manner, additional faceplates would not have to be modified for aviation use. Ground units would retain their NVG capability, and aviation night vision operations would be significantly enhanced, safer, and better able to support the ground commander.

What's in it for MAC?

Initial DOD contract for the AN/AVS-6 NVGs was for 2,200 (Army 1,366; Navy 577; Air Force 277), yet MAC's total SOF and SOLL requirement is 1,292. Presently, 232 are on hand at MAC bases. This excludes 8 in use for the OPBAT mission. 1 SOW receives all new acquisitions and distributes to fill command requirements. MAC's Program Evaluation Group allocated dollars to fund the balance of 1,292 in FY 87-90. The remaining requirements were placed on contract through the Department of the Army.

Adapted from: *Flightfax*

DECISIONS

Sharpen Your Decision Skills

Decisions, decisions, decisions. We make many of them everyday, but most are of little consequence as they deal with minor, routine matters. It seldom makes much difference whether we decide to go to one restaurant or another; go to the movies, or stay home and watch TV. But, in your job as an aviator, this isn't always the case. Let's face it, your life may depend on decisions you make. With all the variables competing for your precious time, the decision-making process can be excruciating, and has been known to cause rigidity, vacillation, apparent stupidity, or panic.

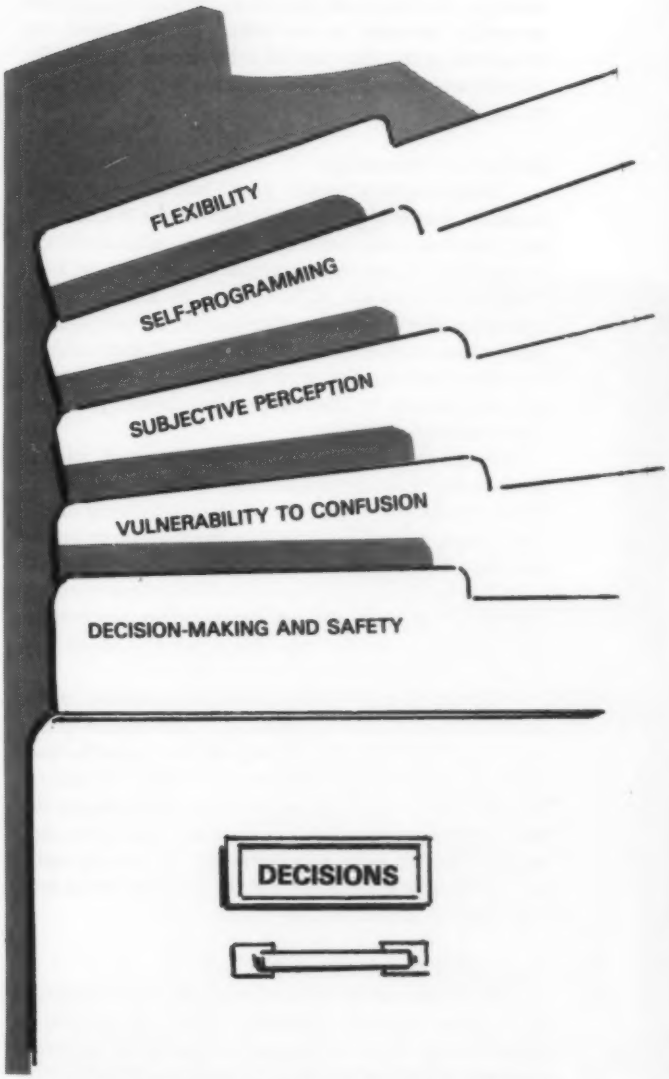
How does the average aviator cope with those situations demanding tough, sometimes almost instantaneous, decisions? What are our strong and weak features where decision-making is concerned? What can be said about the average aviator as a "decider?" To answer these questions we'll look at some of the plusses and minuses aviators bring to decision-making and ways to strengthen our decision-making ability.

Flexibility

An unmanned system senses an event's occurrence in a programmed series only if inputs and procedures specific to each event were provided in its design. A human, however, can improvise alternate detection and response methods. Suppose, for example, your airplane is programmed to intercept and follow an ILS course to touchdown (a very common capability with today's airplanes). If the glideslope receiver fails, the airplane has no flexibility to select an alternate action. You, however, can decide among several options on how you're going to get back on the ground by switching to other electronic or even visual means. This simple example illustrates flexibility as a peculiarly human attribute that, so far, is a necessary ingredient in complex weapons systems. Given alternate information sources and courses of action, you can choose one or more of them to effectively accomplish a mission.

Broad Understanding

People are capable of relating specific, ongoing events to successively broader and broader contexts.



Training and experience provide us with a rich background against which to evaluate a situation and make decisions. In this sense, correct inflight decisions depend largely upon prior experience and training. Because of this, we need to use our training time, and every flight for that matter, to broaden our knowledge in as many areas as possible. Situations

with high mishap potential can happen to everybody, not just the "old heads."

Self-Programming

This refers to the fact that your performance isn't strictly determined by a set of rules and instructions. You can, if one approach fails, try another. Although checklists and flight manuals are normally intended to be action guides, there are occasions when they can be interpreted differently. Sometimes, specific procedures must be improvised on the spot.

Subjective Perception

Ranged against these "good" attributes, we have to admit that one person's picture of the world is, at best, just one view and may not agree with another's perception. It may not necessarily correspond with "reality." At worst, it is subject to distortion by several subjective factors influenced by perception, motivation, and emotion. That's why, if there's time, it's often best to discuss a situation or problem to get a consensus on the real problem before jumping into a decision.

So far as decision-making is concerned, one of those subjective factors is called *subjective utility.* When you put a person in a decision-making situation, you never really know how much value he or she attach to different possible outcomes. You can be certain their subjective values aren't the same in every case as those which result from a strictly mathematical computation. Yet, these subjective values will greatly influence the decision made.

Subjective probability is another unknown in the human decision-making equation. This relates somewhat to probability theory, which is a powerful tool when programming computers to "make" decisions. Unfortunately, the human decision-maker assigns his own vague probabilities to possible outcomes and does so more or less subconsciously. He usually can't tell you in exact quantitative terms what these are, or even why he arrived at them.

Vulnerability to Confusion

Obviously, anyone's performance can be degraded by many different influences. Decision-making is probably one of the first things degraded in the complex environment inherent in today's aircraft. The range of these disturbing and distracting factors is quite often unavoidable. They include noise, real or imagined stress, high traffic loads, fatigue, interruption, rapid switching from one input source to another, G-forces, and so on. Decision-making is bound to be affected under these conditions. We have to be aware of it, screen out non-essential disturbances, and focus on what's really important.

Decision-Making and Safety

Down to the real question: What positive measures can you take to aid your own Decision-Making process? There's no doubt you can develop good judgment, but there isn't a simple formula for how to do it. The most often overlooked step is simply arranging the decision requirements in a systematic and detailed form. Analyzing the task will define those points that call for critical judgments and suggest places where you'll need additional or auxiliary information.

Obviously, aviators need sufficient information to properly evaluate any situation. The information must be precise since you can't expect success by selecting and applying vague generalities. In other words, demand (or provide) usable information. Saying "the engine's on fire" just isn't as effective as saying "number 1 engine's on fire."

The more you anticipate the decision, the more likely you'll make a proper decision. The decision itself takes time, and even more time's required as the number of variables in the situation increases. Checking on weather and making a divert decision is a lot easier *before* fuel becomes a factor than *after.* Snap judgment is apt to be poor judgment. With enough prior thought there may be no need for a decision at all, i.e., subsequent events and actions are all laid out beforehand.

But let's face it, in flying there often isn't time to calmly consider alternatives. In these cases, you'll have to rely on training—training so thorough that foreseeable decision situations are handled with very little "think time" or internal conflict. This is where simulator time and study are invaluable. "Overlearning" responses to emergency situations can be critical because your responses will be more or less automatic and not subjected to degradation by the stressful situation. This reinforces your confidence and familiarity with handling stressful situations.

Summing it all up, the best general rules for improving your decision-making ability include: (1) make the decision as simply and as automatically as possible by thoroughly preparing; (2) maintain your flexibility by encouraging crew inputs and objectively evaluating the information; (3) use your broad understanding to anticipate the kinds of decision-making situations you'll encounter; (4) don't get locked into one solution, if the first solution doesn't work, reprogram yourself to try another; and, (5) continually train and practice handling critical judgment situations during proficiency training sorties and simulator time.

Adapted From: *Aviation Psychology*

A Bucket of Rotorwash

Sometimes easier to find than common sense.

By Maj. Stephens F. McCauley
Associate Editor

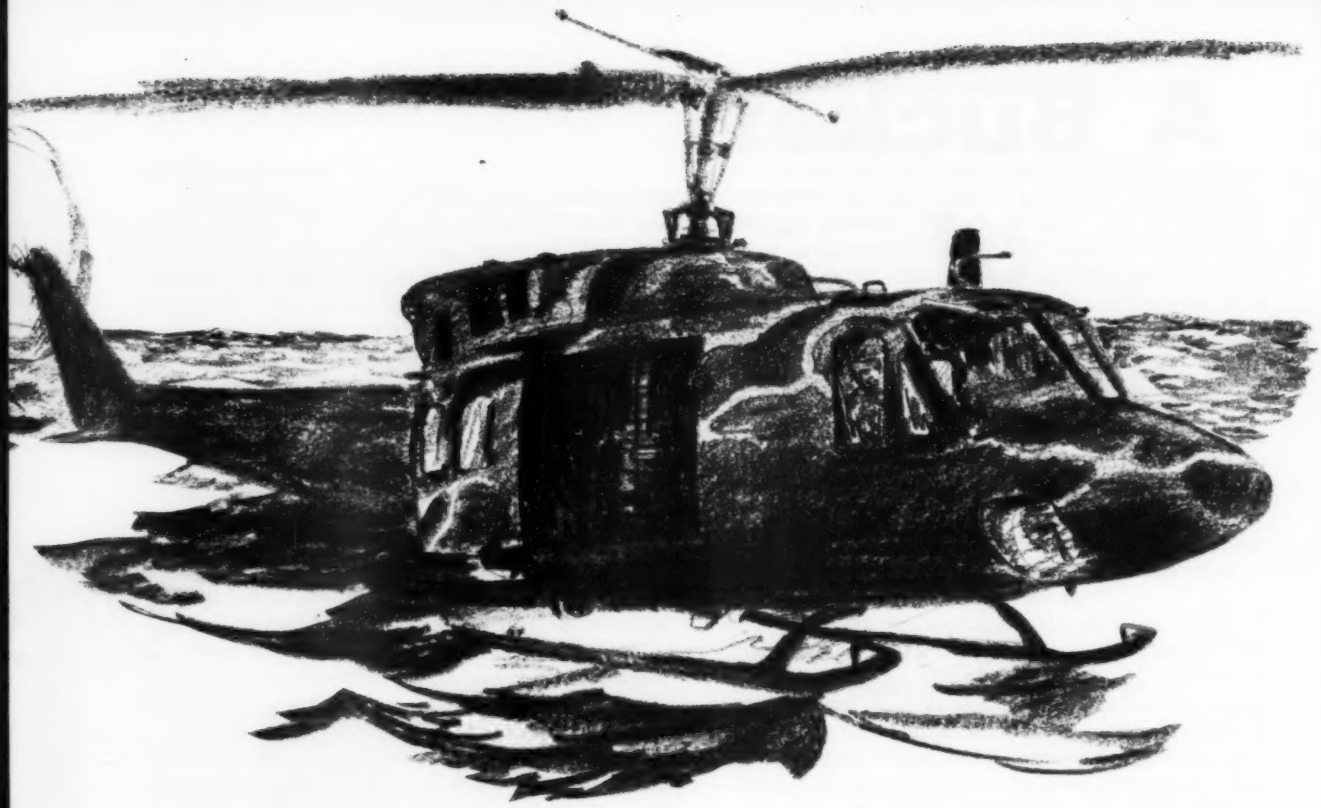
(Editor's Comments: Portions of the following account are adapted from actual events. The story is not accurate in every detail, as it's intended to offer a safety moral which might save crewmembers from being trapped by similar circumstances. Names are changed, as are dates and locations, in an attempt to avoid embarrassing those who might notice a similarity between the story and actual events.)

"There are old pilots. There are bold pilots. But there ain't no old, bold pilots."

Sage wisdom in that old bromide.

Hello. My name is Stan Muldoon, aviation journalist. I write stories about those "close calls" you've heard in third-hand whispers from your squadron mates. I sometimes have to press hard to ferret out the *real* story. Other times, I merely sit and listen while a story unfolds through the words of an eager crewmember or eyewitness.

I tell and retell stories about flight mishaps which *almost* became fatal. Some aviators call them "war stories," though most have only a coincidental relationship with actual war. The real conflict, and its root, is much more insidious. You'll see what I mean as you read the following story told by a former helicopter pilot.



First, the interview setting. Dean, our storyteller, settles his lanky frame into the splintery old rocker near the railing of the wooden porch. We're out of direct view of the steady promenade of beach tourists on Ocean Drive Way. The back porch of the old resort hotel offers a perfect vista of endless ocean, bordered only by the white dunes before us and the tide which steadily encroaches upon the sandy parcel of real estate. The steady slap of surf, aided by the whispering rustle of randomly planted sea oats, provides a rhythmic background for the carefully chosen words of his saga.

Dean begins:

"Our unit really had a bunch of hard-core, mission-oriented old heads," he drawls. "Most of us had flown special operations helicopters in Southeast Asia so we yearned for the unfettered operational freedom of the 'good old days.'

"I was the novice in the unit; the most junior in rank and with the fewest helo hours among the pilots.

"The operations officer was a weathered and wiry old cuss. Although he was the most senior pilot, his background was mainly in Air Rescue and Recovery Service. A ferocious chain smoker, he was best known for his flinty temper. That spontaneously combustible personality prompted those who worked for him to surreptitiously assign him the nickname 'Ricochet.' He was quite old and nearing mandatory retirement so he used every opportunity to remind prospective copilots that his reflexes were quicker than any youngster's. That self-proclaimed attribute usually sufficed to excuse his doing all the flying and communicating while the other pilot navigated and 'kept an eye on the guages' for him.

"There was an ongoing debate over our unit's real mission tasking. The majority held that we were an 'anything, anytime, anyplace outfit.' For the most part that was true, and we all took pride in that.

"Old Ricochet, however, objected that we had no established procedures for one of the most dreaded missions for helicopter pilots: Night Overwater Hoist Recovery. (Aargh! Just saying those words recalls the discomfort of a blackly disoriented 20-knot aftward motion, and a sense of helplessness in correcting it.)

"The unit had never been required to fly that type mission, although we'd done every other kind. Furthermore, none of us felt particularly spurred by the challenge. Hovering a chopper over water is like trying to maneuver a pogo stick with a roller skate attached to the bottom. Doing it at night compounds

the problem by practically blindfolding the operator.

"Ricochet had performed this death-defying act before, in Rescue, so he thought it would be a swell idea for the rest of us to learn how. He would have formally requested headquarters permission to practice it , but they'd already indicated a negative feeling towards the idea.

"We were scheduled for a night training sortie together; briefing was at 1800 hours. I must admit, I wasn't really surprised when Ricochet announced we would 'night survey' his proposed night water training area at the big lake. The flight engineer seemed to go along with the idea, except for some reservation about not having adequate flares available. Briefing details covered my copilot responsibilities for the over water portions of the mission: altitude and airspeed callouts, as well as monitoring engine instruments. I was also to occasionally report power demand, as indicated on the torque guage.

"Allowable torque limit is 100 percent of maximum allowable transmission load. There's an automatic torque limiting mechanism, calibrated during functional check flights, which is supposed to prevent applying power above the limit. I made a mental note that our bird had a unique torque limiter setting: it would reportedly permit power applications through at least 120 percent, inadvertently proven during a recent Army support (soda and beer delivery) mission.

"So, off into the night we flew. I harbored some misgivings about the legality and safety of practicing night water hoist operations. However, this was to only be a 'survey' of the training area.

"Over the lake, we cleared for obstacles and set up a rectangular orbit pattern. Ricochet wasn't known for welcoming unsolicited crew inputs, so the flight engineer and I listened apprehensively as he recited a steady monologue. He'd improvised a night water hoist checklist, so he briefed the details he felt might apply to a 'dry run' approach to the simulated pickup point.

"As you might surmise, the result of our 'dry run' was anything but dry. Depth perception over that shiny black water was deceptive and almost surrealistic. I tried to keep up with airspeed and altitude callouts, but those instruments just aren't all that accurate as you go lower and slower. Just as it seemed we might be approaching a hover, the real excitement began.

"CLAP! We'd just barely touched the water, but it seemed to be sucking us under. I heard popping sounds as the underbelly buckled and water began entering through my plexiglass chinbubble. Instantaneously, the engine's shrieking whine in response to the sudden power demand pierced the warm night air. Glancing at the surging torque meter, I hollered, 'One hundred twenty-five percent' as Ricochet pulled the collective power lever further into his armpit. The rotor RPM (i.e. 'helicopter staff of life') began to decay through 90 percent and the warning horn pulsed our eardrums with monotonous regularity. I felt sure that would become my watery grave, but my life didn't flash before my eyes; I was too busy trying to grab a piece of the flight controls!

"Suddenly, it was quieter. Airspeed and altitude increased, power demand decreased to below 80 percent. We were alive! Ricochet nursed our aircraft for the next five minutes of semi-controlled flight to the nearest abandoned airport and planted the skids into the soft approach-end asphalt.

"Engines shut down, we surveyed the damage. Tail skid bent, sheet metal deformed; thank God the tail rotor hadn't touched the water. The underbelly looked like an elephant had walked on it. We were lucky to be alive. At that moment, I resolved to go into the ministry, I had a debt to repay."

After Dean's dramatic conclusion, I finally see an opportunity to interject my favorite question: "Dean, what do you *really* think went wrong?"

"Ah, well," he slowly drawls, "Not much of anything really went *right*. But, after these past years of reflection, I think it might be summarized as a breakdown in basic communication. I mean communication between headquarters and the unit, among crewmembers within the unit, and finally within our own crew. That last link was, of course, the most vital. Obviously, there was the intimidation factor generated by Ricochet's personality. Had our crew openly discussed the safety and advisability of attempting that new maneuver, we might have reconsidered. What really trapped us was overconfidence and, perhaps, complacency with our familiar environment. Maybe some aircrew can benefit from the lesson we learned that night."

"A very close call," I respond. "I hope my rendition of it will remind crewmembers of their personal responsibility for safety on each and every mission."

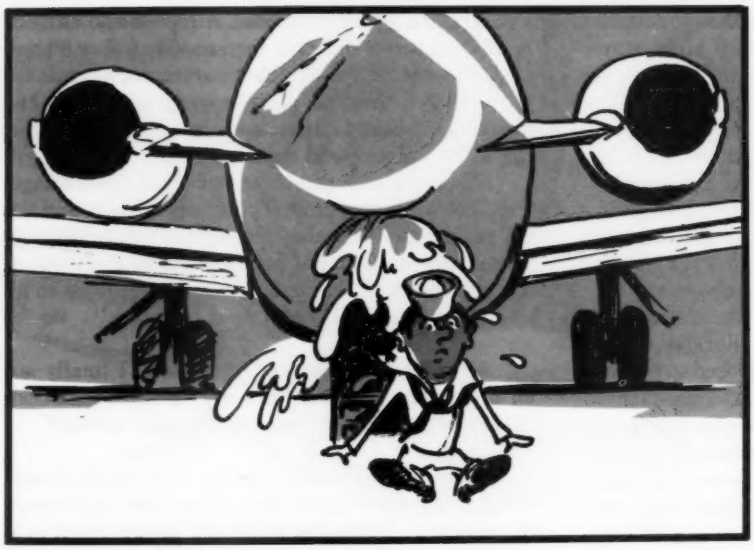
I thank Deacon Dean for his candid revelations and wish him God's blessing in his parochial pursuits.

Thus, my mission continues; to print the warning to aircrew that there are hidden hazards and insidious traps associated with this flying business. Awareness can add that extra margin of safey.

This has been Stan Muldoon, wishing you safe skies and mission success!

QUICKSTOPPERS

ADULT SUPERVISION



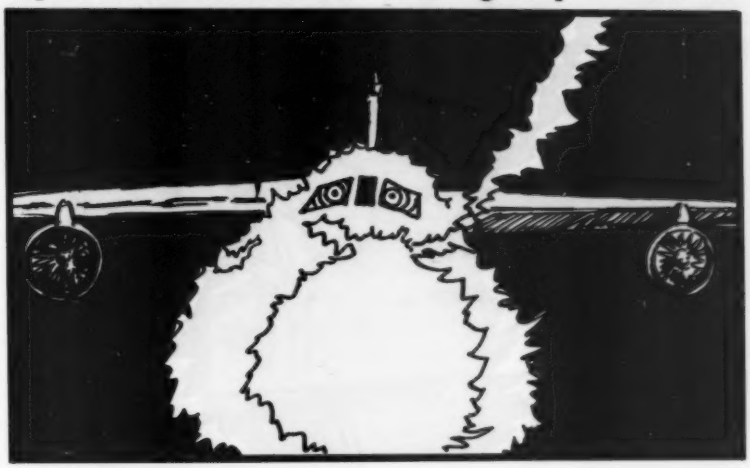
A Navy C-9 recently suffered a soaking experience with 40 Sea Scouts aboard. Seems one of the scouts forced the water faucet past the point of no return and left the water running with the drain closed. Well, as can be expected, almost 15 gallons of water flooded the lavatory before a crewmember discovered it. The quick-thinking AC requested immediate descent below the freezing level. Water soaked into the baggage compartment, and the mission was cancelled until a full inspection could be performed. While no one was hurt, the potential existed to freeze flight controls, short-circuit electronics, and any number of other "undesirable consequences."

THE ANSWER IS BLOWING IN THE WIND

The Sherpa crew parked where they were told and went to base ops to do their proper throughflight planning. While they enjoyed their coke and salted peanut lunch, their unfortunate plane was seriously assaulted by a passing Navy C-9. Seems the marshaller directed the C-9 to taxi past the parked C-23, and then signalled a sharp right turn followed by an immediate 180-degree turn into the spot beside the mini-transport. The jet blast physically raised the Sherpa's nose off the ground momentarily, then forcibly pushed it laterally causing the nose gear to drag across the ground. The now irate aircrew inspected their craft and couldn't find any visible damage. Leaving nothing to chance (and not blessed with X-ray vision), they decided to conduct a taxi check prior to departure. Grinding noises emanated from the nose gear, so maintenance removed and replaced the entire assembly. But, that's not all. Subsequent tests on the aircraft revealed the copilot's HSI had also been damaged during the uncommanded aircraft movement!

YOU REALLY LIGHT UP MY LIFE!

The weather prognosticators offered the Rota-bound C-5 VFR conditions for their ETA, with thunderstorms in the vicinity. That forecast held, and the airplane descended from the north in night VMC with no clouds visible. The crew observed occasional lightning flashes on the horizon south of the airport. Leveling at 10,000 ft, there was some "light chop" turbulence with no precip as the giant aircraft entered IMC. *ZAP!* A sudden lightning strike was accompanied by a bright flash and a loud "boom." Entering an area of light rain, patches of St. Elmo's fire danced like "green waves on the windscreen." Onboard radar depicted no severe weather returns within more than 20 nm, but OAT was +1 degree centigrade. Postflight revealed a 3/8 inch burn hole in the radome and 103 "spot weld" points under the forward fuselage. Both HF radio couplers were rendered inop by the strike. Moral: Even though complying with MAC guidance concerning severe weather avoidance, aircrews should be alert for the possibility of lightning strikes whenever flying near the freezing level.



DON'T GET CAUGHT WITH YOUR PANTS DOWN!

Thirty minutes from landing, the C-130 was leveling at FL 070. The loadmaster, after responding to an urgent call of nature, had positioned himself on the portable toilet platform. He then proceeded to stand up with his flight suit still rolled around his ankles just as the pilot added power to maintain airspeed. The loadmaster attempted to brace himself against the acceleration force by spreading his legs apart, but lost his balance and fell from the platform. Postflight medical consultation revealed a fractured cheekbone caused by the fall.

OUCH! THAT LIGHT IS HEAVY!

The seemingly harmless exit light fell from its mounting bracket during the C-130 takeoff roll. No harm done—happens all the time. A loadmaster handed the light to the crew chief who said to simply reattach it to the bracket. On subsequent takeoff roll, the light fell and struck a passenger. The resulting head laceration warranted a home station ambulance reception. Emergency exit lights are supposed to be secured by safety wire to prevent their vibrating loose. However, it seems there's a learning curve delay in complying with the safety wire requirement. One final note for aircrews: Those emergency exit lights are not really intended to substitute for your personal flashlight. Save the emergency equipment for when you *really* need it!

After Deadlines

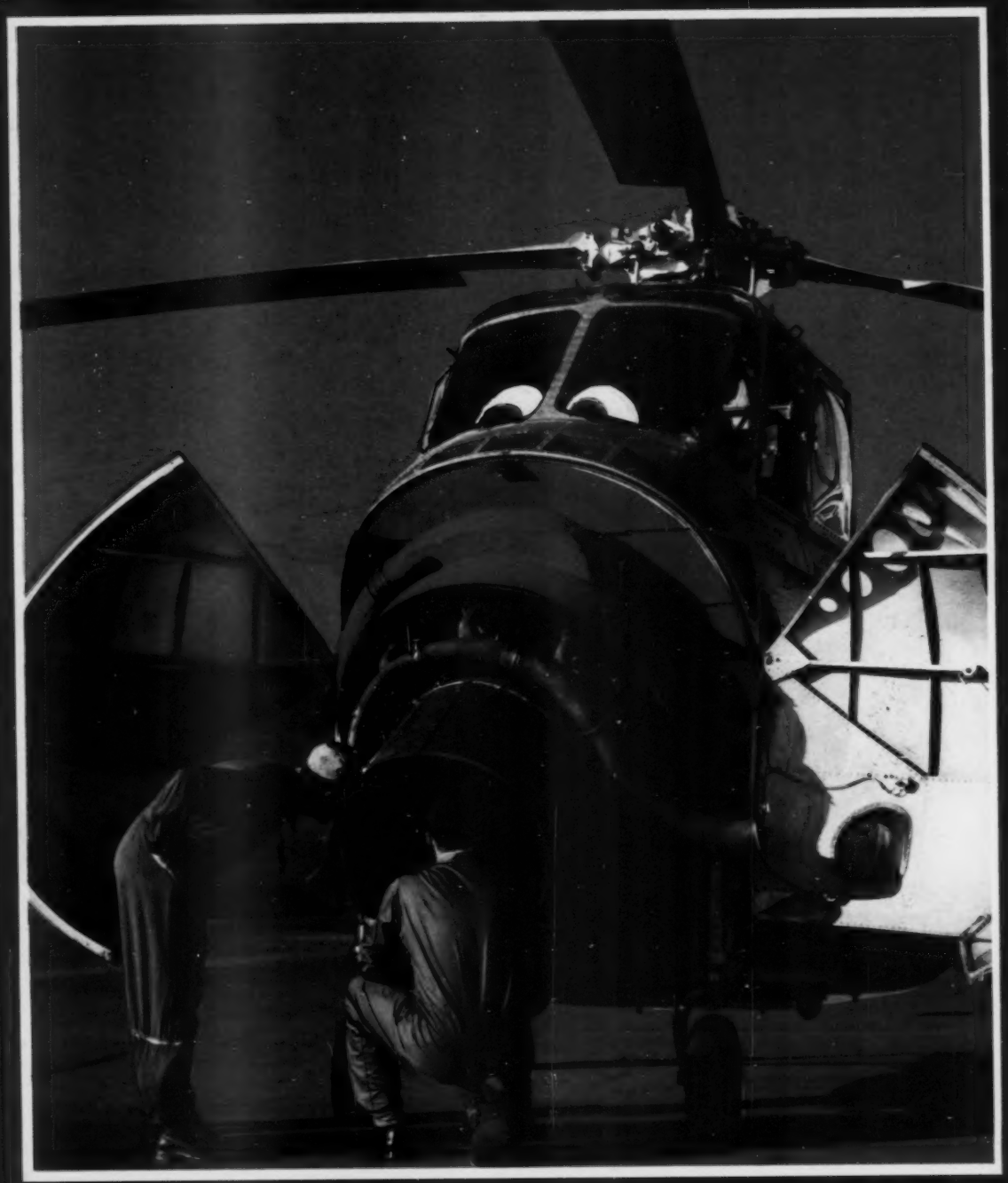
EUROPE BOUND MAC AIRCREWS should contact 322 ALD Weather Support Unit (USAFE WSU) when east of 10 degrees west longitude [ref MACR 105-1, para 3-6a(1)]. A problem arises when MAC aircrews ask for Ramstein Metro or Rhein Main Metro instead of USAFE WSU. The Ramstein or Rhein-Main base weather stations don't mind helping, but the additional workload can, and does, interfere with local missions. Please ask for the USAFE WSU when Europe bound. FLIP lists the correct phone numbers.

IF YOU WERE WONDERING what caused two fighters , one with a nationally known sports celebrity aboard to collide last November, the initial investigation is complete. Added to the usual list of faults: tasking, directives, mission preparation and planning, mission briefing; inflight supervision, training rules, and cockpit environment; was the pilot's eyesight. Immediately after the mishap, the pilot's vision was measured on two occasions to be 20/40 (distant). This deterioration in visual accuity was significant in his initial perception of the other mishap fighter during the maneuver. The effect of poor imaging helped the mishap pilot misperceive the attack, and contributed to his decision to pursue it until the collision was nearly unavoidable. Throw away that pride of youth and take eye tests seriously. Your perception of what you see is what guides your motions when flying low, landing, taxiing, and everything else. The good news is--it's correctable.

WE'RE ON THE MOVE! In January, ***TMF's*** Captain Dan Dougherty visited Dover and Andrews to research information for future articles. Both visits were a great success due to the gracious hospitality of the wings' safety offices. Our special thanks to Majors Gordy Minner and Mike Bell from Dover, Majors Bob Silver and Sandy Hoffpauir from Andrews, and all the folks who gave willingly of their time and spoke proudly of their contributions to the MAC mission. As soon as we compile the mounds of information gathered, you'll see it in print--pictures too! So watch for us, we may be visiting your base next.

OUR READERS TELL US one of their favorite ***TMF*** departments is "QUICKSTOPPERS." If you've ever wondered where we get the information, most of it comes from mishap reports. We look for mishaps with both an interesting twist and a clear safety lesson for all. Those two factors are then pounded into an entertaining format. But there're a lot of stories out there that (fortunately) don't make mishap reports. Help us out; send us brief recaps of your not-quite mishaps. Don't worry about format, typing, or any of those; just a sequence of events will do. Mail it 'pouch' through your squadron admin to: HQ MAC/IGFE; Scott AFB, IL 62225-5101.

Touch 'n Go



Now, try not to sneeze, and just say "Ahhh."